PSMFC and CDFW began implementing the Central Valley Steelhead Monitoring Program (CVSMP) in July 2015 to monitor Central Valley (CV) steelhead (Oncorhynchus mykiss) in the Sacramento River watershed. A component of that program includes monitoring steelhead distribution and abundance in the Upper Sacramento River Basin (USRB) tributaries.

Goals:
- Monitor adult abundance, distribution and run timing of Central Valley (CV) Steelhead in USRB tributaries
- Estimate juvenile abundance
- Estimate emigration timing of Juvenile CV Steelhead

Objectives include:
- Install PIT antenna arrays in tributaries of Upper Sacramento River to detect movement of tagged adults and juveniles (reference photo)
- Video, Didson, Aris, and Vaki monitoring to count steelhead migrating into USRB tributaries (Figure 1)
- Utilize rotary screw traps and their efficiency to implant PIT tags in juvenile Steelhead and evaluate trends in juvenile abundance

Methods

- Passive Integrated Transponder (PIT) tag interrogation arrays
  - Mark-recapture extension of Fyke Program
  - Supporting main-stem tagging efforts
  - Provide data on seasonal, temporal, and behavioral characteristics of hatchery and natural origin steelhead
- Video/SONAR monitoring of USRB tributaries
  - Video stations made-up of three underwater cameras, one overhead
  - Installed in twenty ft. opening in weir to direct migration within detection range
  - Resistance board weir self-adjusts in changing water conditions providing late season monitoring opportunities
  - Fish ladders ideal for Vaki placement; infrared sensors are limited in range to a few feet
- Rotary Screw Trapping
  - PIT-tag steelhead smolts
    - Weight, length, genetic sample
    - Trap efficiency study
    - Track changes in fish abundance
  - Mark-recapture
    - Juvenile outmigration timing

Results

- Resistance board weir installed on Clear Creek
- Rotary screw trapping has proven effective in capturing and tagging natural origin steelhead smolt on Deer and Mill Creeks

Future Goals

- Examine trends in steelhead abundance in the Central Valley
- Identify spatial distribution of steelhead to identify current range and observe changes
- Evaluate and enhance monitoring, research, and management goals and objectives
- Estimate steelhead population abundance
- Analyze collected tissue samples to determine anadromy

Redd Surveys

- Flexibility in changing conditions
- Negligible impacts to sensitive species
- Escapement estimates

Future Infrastructure

- PIT Array
  - Clear Ck, Paynes Ck, Cow Ck, Battle Ck
- Resistance board weir
  - North and South fork Cottonwood Ck,
- Rotary screw trapping
  - Bear Ck, Antelope Ck, Cottonwood Ck, Clear Ck, Mainstem Sacramento, Cow Ck